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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: TAFT et al. Docket No.: 372584-00102  
Serial No.: 10/644,227 Group Art Unit: 1745  
Filing Date: August 19, 2003 Examiner: Bruce F. Bell  
For: **COMPOSITE POLYMER ELECTROLYTES FOR PROTON EXCHANGE MEMBRANE FUEL CELLS**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Arlington, VA 22313-1450

### INFORMATION DISCLOSURE STATEMENT

Applicant submits herewith the references listed on the attached form PTO-1449 of which Applicant is aware and in respect of which there may be a duty to disclose in accordance with 37 C.F.R. § 1.56.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), nor as an admission that the information cited is, or is considered to be, material to patentability, nor an admission that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any matter. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Dated: November 17, 2004

Respectfully submitted,

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### CERTIFICATE OF MAILING (37 CFR 1.8 (a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited on November 17, 2004 with the U.S. Postal Service as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 by Everett La Pointe.

Dated: November 17, 2004

*Everett La Pointe*  
Everett La Pointe



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## TRANSMITTAL FOR INFORMATION DISCLOSURE STATEMENT

Enclosed for filing in the above-identified application is:

- Information Disclosure Statement;
- Form PTO-1449 (supplemental) and copies of cited references; and
- Postcard for date-stamped return as confirmation of receipt of above.

The Commissioner is further authorized to charge any required additional fees, or credit any overpayment, to Deposit Account Number 50-2778.

Respectfully submitted,

Dated: November 17, 2004

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### CERTIFICATE OF MAILING (37 CFR 1.8(a))

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Date: November 17, 2004

Everett La Pointe



1449 U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

SUPPLEMENTAL  
INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

ATTY DOCKET NO.	SERIAL NO.
372584-00102	10/644,227
APPLICANT	
TAFT III, Karl Milton et al.	
FILING DATE	GROUP
August 19, 2003	1745

**U.S. PATENT DOCUMENTS**

EXAMINER INITIALS	CITE No.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE If appropriate
	AA	5,523,181	06/04/1996	Stonehart et al.	429	192	
	AB	5,977,241	11/02/1999	Koloski et al.	524	502	
	AC	6,548,590	04/15/2003	Koloski et al.	524	492	
	AD	2004/0019143	01/29/2004	Koloski et al.	524	434	
	AE	2004/0137303	07/15/2004	Koloski et al.	429	35	

**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIALS	CITE No.	DOCUMENT NUMBER	DATE	COUNTRY	NAME	CLASSIFICATION

**NON-PATENT DOCUMENTS**

EXAMINER INITIALS	CITE No.	INCLUDE AS APPLICABLE: AUTHOR, TITLE DATE, PUBLISHER, EDITION OR VOLUME, PERTINENT PAGES)
	AF	ADJEMIAN, K.T. et al.; "Silicon Oxide Nafion Composite Membranes for Proton-Exchange Membrane Fuel Cell Operation at 80-140° C"; Journal of The Electrochemical Society, 149 (3) A256-A261 (2002)
	AG	ANTONUCCI, P.L. et al.; "Investigation of a direct methanol fuel cell based on a composite Nafion®-silica electrolyte for high temperature operation"; Solid State Ionics 125 (1999) 431-437
	AH	AHN, Sang-Yeoul et al.; "Properties of the reinforced composite membranes formed by melt soluble ion conducting polymer resins for PEMFCs"; Electrochimica Acta xxx (2004) xxx
	AI	ARICO, A.S. et al.; "Surface Properties of inorganic fillers for application in composite membranes-direct methanol fuel cells"; Journal of Power Sources 128 (2004) 113-118
	AJ	BOYSEN, S.A. et al.; "Polymer Solid Acid Composite Membranes for Fuel-Cell Applications"; Journal of The Electrochemical Society, 147 (10) 3610-3613 (2000)
	AK	CHANG, Jae-Hyuk et al.; "Proton-conducting composite membranes derived from sulfonated hydrocarbon and inorganic materials"; Journal of Power Sources 124 (2003) 18-25
	AL	CHEN, Sheng-Li et al.; "Ion exchange resin/polystyrene sulfonate composite membranes for PEM fuel cells"; Journal of Membrane Science xxx (2004) xxx-xxx
	AM	DENQ, Q. et al.; "Nafion/ORMOSIL Hybrids via <i>in Situ</i> Sol-Gel Reactions. 3. Pyrene Fluorescence Probe Investigation of Nanoscale Environment"; <i>Chem Matter.</i> (1997), 9, 36-44

	AN	DENG, Q. ET AOL.; "Nafion®/(SiO <sub>2</sub> , ORMOSIL, and Dimethylsiloxane) Hybrids Via In Situ Sol-Gel Reactions; Characterization of Fundamental Properties"; Journal of Applied Polymer Science, Vol.68, 747-763 (1998)
	AO	EASTON, E.B.; "Characteristics of Ppypyrrole/Nafion composite Membranes in a Direct Methanol Fuel Cell"; Journal of The Electrochemical Society, 150 (10) C735-C739 (2003)
	AP	FUJINAMI, T. et al.; "Proton conducting borosiloxane-poly(ether-sulfone) composite electrolyte"; Electrochimica Acta xxx (2004) xxx-xxx
	AQ	JUNG, D.H. et al.; "Performance evaluation of a Nafion/silicon oxide hybrid membrane for direct methanol fuel cell"; Journal of Power Sources 106 (2002) 173-177
	AR	KIM, D. et al. "Nano-silica layered composite membranes prepared by PECVD for direct methanol fuel cells"; Electrochemistry Communications 6 (2004) 1069-1074
	AS	KIM, Young-Taek et al.; "Nafion/ZrSPP composite membrane for high temperature operation of PEMFCs"; Electrochimica Acta xxx (2004) xxx-xxx
	AT	KIM, Y.M. et al.; "Organic-inorganic composite membranes as addition of SiO <sub>2</sub> for high temperature-operation in polymer electrolyte membrane fuel cells (PEMFCs)"; Electrochimica Acta 49 (2004) 4787-4796
	AU	KUMAR, B. et al.; "Polymer-ceramic composite protonic conductors"; Journal of Power Sources 123 (2003) 132-136
	AV	KWAK, Sang-Hee et al.; "Polymer composite membrane incorporated with a hygroscopic material for high-temperature PEMFC"; Electrochimica Acta xxx (2004) xxx-xxx
	AW	MAURITZ, K.A.; "Organic-inorganic hybrid materials; perfluorinated ionomers as sol-gel polymerization templates for inorganic alkoxides"; Materials Science and Engineering C 6 (1998) 121-133
	AX	NAKAJIMA, H. et al.; "High Temperature Proton Conducting Organic/Inorganic Nanohybrids for Polymer Electrolyte Membrane"; Jo8rnal of The Electrochemical Society, 149, (8) A953-A959 (2002)
	AY	NAKAMOTO, N. et al.; "Medium temperature operation of fuel cells using thermally stable proton-conducting composite sheets composed of phosphosilicate gel and polymide"; Journal of Power Sources xxx (2004) xxx-xxx
	AZ	PARK, Y.S.; "High proton-conducting Nafion/calcium hydroxyphosphate composite membranes for fuel cells"; Electrochimica Acta xxx (2004) xxx-xxx
	BA	RAMINI, V. et al.; "Investigation of Nafion®HPA composite membranes for high temperature/low relative humidity PEMFC operation"; Journal of Membrane Science 232 (2004) 31-44
	BB	RAMINI, V. et al.; "Stabilized heteropolyacid/Nafion® composite membranes for elevated temperature/low relative humidity PEFC operation"; Electrochimica Acta xxx (2004) xxx-xxx
	BC	SAVADOGO, O.; "Emerging membranes for electrochemical systems Part II. High temperature composite membranes for polymer electrolyte fuel cell (PEFC) applications"; Journal of Power Sources 127 (2004) 135-161
	BD	SHAO, Zhi-Gang et al.; "Preparation and characterization of hybrid Nafion-silica membrane doped with phosphotungstic acid for high temperature operation of proton exchange membrane fuel cells"; Journal of Membrane Science 229 (2004) 43-51
	BE	SHIM, J. et al.; "Characteristics of the Nafion ionomer-impregnated composite membrane for polymer electrolyte fuel cells"; Journal of Power Sources 109 (2002) 412-417
	BF	SI, Y. et al.; "Nafion-Teflon-Zr(HPO <sub>4</sub> ) <sub>2</sub> Composite Membranes for High-Temperature PEMFCs"; Journal of The Electrochemical Society 151 (4) A623-A631 (2004)
	BG	VERNON, D.R. et al.; "Synthesis, characterization, and conductivity measurements of hybrid membranes containing a mono-lacunary heteropolyacid for PEM fuel cell applications"; Journal of Power Sources xxx (2004) xxx-xxx
	BH	YANG, C. et al.; "A comparison of physical properties and fuel cell performance of Nafion and zirconium phosphate/Nafion composite membranes"; Journal of Membrane Science 237 (2004) 145-161
	BI	YOUNG, S.K. et al.; "Nafion®/Organically Modified Silicate) Nanocomposites via Pplymer <i>in situ</i> Sol-Gel Reactions; Mechanical Tensile Properties"; Journal of Polymer Science: Part B; Polymer Physics, vol. 40, 2237-2247 (2002)

	BJ	ZOPPI, R.A. et al.; "Electrochemical impedance studies of hybrids of perfluorsulfonic acid ionomer and silicon oxide by sol-gel reaction from solution"; <i>Journal of Electroanalytical Chemistry</i> 445 (1998) 39-45
	BK	ZOPPI, R.A. et al.; " Hybrids of perfluorosulfonic acid ionomer and silicon oxide by sol-gel reaction from solution: Morphology and thermal analysis"; <i>Polymer</i> Vol. 39 Nos. 6-7, pp. 1309-1315 (1997)

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant	